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ABSTRACT

This report describes and evaluates the Boise (Idaho) School District's operation of a Chapter 1 Project, the Elementary Structured Tutoring Program. The project provides tutoring in reading and mathematics skills to educationally deprived students in grades 2-6. Tutors are either paraprofessional adults or supervised students (grades 4-6) who volunteer 20 minutes each day to assist younger students. The program is carefully structured to ensure that positive reinforcement strategies are used and objectives are met. Tutors undergo two to three days of pre-service training which emphasizes positive reinforcement techniques. The program is closely coordinated with the regular classroom curriculum, and various efforts are made to involve parents and the community. The report describes successful features of the program, such as the effectiveness of its emphasis on positive reinforcement and its efficient use of time for maximum learning. Student progress is monitored closely, and participants receive continuous feedback. A system has been established to regularly recognize and reward outstanding work. Results of annual evaluations are presented for the school years between 1980-81 and 1985-86. Program effectiveness is high and steadily improving. Parents and teachers have responded very positively to the program; many have commented on the improvement in pupil's attitudes. (KH)

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THE INDEPENDENT SCHOOL DISTRICT OF BOISE CITY

ADMINISTRATIVE OFFICES • 1207 FORT ST. • BOISE, IDAHO, 83702 • (208/338-3400

ED277771

CHAPTER 1 PROJECT
IDENTIFICATION PROGRAM

SECRETARY'S INITIATIVE

FEBRUARY, 1986

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Boise Schools

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UD025234

CHAPTER 1 PROJECT IDENTIFICATION PROGRAM

COVER SHEET

Local Superintendent's or Chief Operating Officer's Name (Mrs., Miss, Ms., Mr., Dr.)

Dr. Barney C. Parker

Education Agency's Name The Independent School District of Boise City

Address 1207 Fort Street
Boise, ID 83702

Telephone Number (208) 338-3400 Congressional District(s) 1 & 2

I have reviewed the information contained on this form and, to the best of my knowledge, it is accurate.

_____ Date _____
Superintendent's Signature

****

Chapter 1 Coordinator's Name (or other official responsible for project administration) (Mrs., Miss, Ms., Mr., Dr.)

Dr. Geri Plumb

Address Boise Schools
1207 Fort Street
Boise, ID 83702

Telephone Number (208) 338-3400 ext. 246

Date of most recent SEA on-site review of project February 19-22, 1985

I have reviewed the information contained on this form and, to the best of my knowledge, it is accurate.

_____ Date _____
Chapter 1 Coordinator's Signature

State _____

Chief State School Officer's Name (Mrs., Miss, Ms., Mr., Dr.)

_____

Address _____
_____
_____

Telephone Number ( ) _____

I hereby nominate this project for consideration under the Chapter 1 Project Identification Program. To the best of my knowledge, the information contained in this form is accurate, and the project is being implemented in compliance with Federal requirements.

_____ Date _____
Chief State School Officer's Signature

****

Name and Title of Person(s) completing form

Dee Burrow, Chapter 1 Program Facilitator
_____
_____
_____

Ia. DISTRICT INFORMATION
(Complete if project operates in a local school district, unless project is a State administered migrant program. State agency programs should be described on the next page.)

A. District Name The Independent School District of Boise City #1

Name of Contact Person Dr. Geri Plumb

Telephone Number (208) 338-3400 ext. 246

B. Descriptive Information for the 1984-85 school year.

1. Total district enrollment 21,500

* 2. Total number of classroom teachers 1,046

3. Grades or equivalent education span of district K-12

4. What is the racial/ethnic composition of the student body in your district/agency?

1 % American Indian or Native Alaskan
2½ % Asian or Pacific Islander
2 % Hispanic
1 % Black, not of Hispanic Origin
93½ % White, not of Hispanic Origin

5. Total population in school district 100,000

6. In general, how would you classify the district?
Rural _____ Small town _____
Suburban X Urban X

7. What percentage of the students in your district comes from low-income families? 29.7 (Please indicate how you determined this number.)

This has been determined by use of a survey that verifies the number of students qualified and approved to receive free or reduced lunches in our elementary schools

8. Please describe briefly any significant changes that have occurred in these student figures during the last 3-5 years.

The only significant changes in these figures during the last 3 years has been a slight increase in the percentage of low-income students

*This number includes approximately 75 Special Education classroom teachers

Ib. STATE AGENCY PROGRAM INFORMATION
(Complete if project is operated by a State agency.) NA

A. Agency Name _____

Name of Contact Person _____

Telephone number (___) _____

B. Type of Agency

State Educational Agency _____
State Institution/Delinquent _____
State Institution/Neglected _____
State Institution/Handicapped _____
Other (Specify) _____

C. Descriptive Information for the 1984-85 School Year

1. Number of institutions participating in State agency program _____

2. Number of institutions participating in the nominated program _____

3. Total number of classroom teachers _____

4. Grades or equivalent span of participating institution(s) _____

5. What is the racial/ethnic composition of the student body in the institution(s)?

_____% American Indian or Native Alaskan
_____% Asian or Pacific Islander
_____% Hispanic
_____% Black, not of Hispanic Origin
_____% White, not of Hispanic Origin

Ic. PROJECT INFORMATION
(Everyone must complete this section.)

A. **Project Title:** Elementary Structured Tutoring Program

B. **Program Category** Chapter 1 Reading and/or Math

Basic Grants to LEA X
Migrant Education _____ Section 141 _____
Section 143 _____
Neglected/Delinquent NA
Handicapped _____

C. **Area(s) of Service Submitted**

Reading X
Mathematics X
Oral Language _____
Other Language Arts _____
Other (Specify) _____

D. Number of children participating from public school(s) 1,500
and nonpublic school(s) 150

E. Grade level(s) or equivalent span of children receiving project services 1-6

F. Number of staff in the Chapter 1 project. teachers _____
aides 46
volunteers 500 (4, 5, 6 grade Student Tutors)

Describe the average educational (level) background, e.g., degree, experience, training of the teachers and education aides in the Chapter 1 project.

This project does not require certified teaching personnel. Personnel are required to have basic reading & math skills and must be trained in the structured program sequence and techniques. Two to three days pre-service training is required. Additional inservice training is provided as needed. All personnel are supervised and evaluated by the Tutorial Program Specialist.

G. School year(s) for which this project is being nominated (must include school year 1984-85). 80-81, 81-82, 82-83, 83-84, 84-85

H. Estimated Chapter 1 annual per pupil cost to conduct this project in school year 1984-85. $250

I. What are the primary educational needs of the particular group of students served by your Chapter 1 project? Please indicate how these needs were determined and whether there are ongoing procedures for reviewing their relevance.

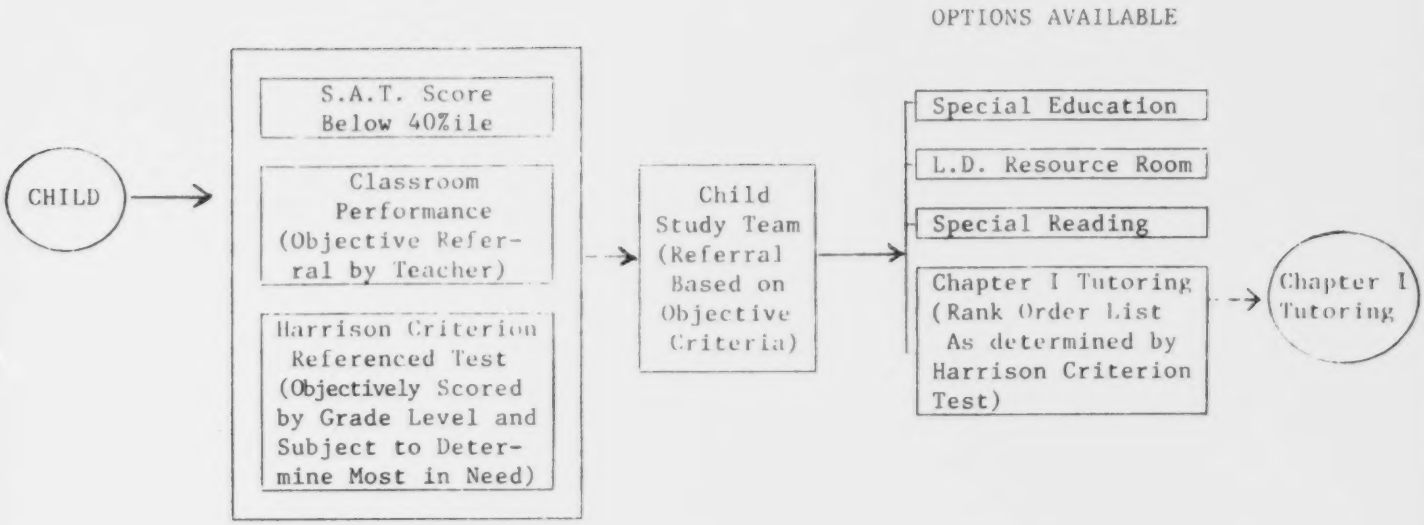
(Use additional sheet if necessary.)

The primary educational needs of the students served by this Chapter 1 Project are reading comprehension and math computation. These needs are determined annually through the use of teacher, parent, and administrator surveys and normed referenced data received from the district administered S.A.T. test which is given to all elementary students each Spring. The Harrison Criterion Test is also provided to determine the beginning level of instruction.

J. Describe how students are selected for the Chapter 1 project.

Students are screened initially using the Stanford Achievement Test which is administered each Spring, by the district, to all students in grades 1-6. Those students attending Chapter 1 schools who score below the 40%ile and are not receiving other ancillary services such as Special Education or Learning Disabilities instruction, are given the Harrison Diagnostic Test. This test determines if the structured program will meet the educational needs of the student and prescribes which objectives are to be covered. Based on these results, students are placed on a rank order list and scheduled into the program according to greatest need.

FLOW CHART FOR IDENTIFICATION


OPTIONS AVAILABLE
CHILD
S.A.T. Score Below 40%ile
Classroom Performance (Objective Referral by Teacher)
Harrison Criterion Referenced Test (Objectively Scored by Grade Level and Subject to Determine Most in Need)
Child Study Team (Referral Based on Objective Criteria)
Special Education
L.D. Resource Room
Special Reading
Chapter I Tutoring (Rank Order List As determined by Harrison Criterion Test)
Chapter I Tutoring

K. List the names of the schools or institutions participating in the Chapter 1 Project, and if it is an LEA project, the percentage of children from low-income families for each school during school year 1984-85.

Name	% of children from low-income families
Whittier Elementary	62.53
Jefferson	43.28
Whitney	39.72
Franklin	35.92
Madison	34.88
Taft	34.35
Lowell	33.71
Garfield	27.46
Longfellow	26.92
Hawthorne	24.79
Hillcrest	24.19
Monroe	23.70
Campus	23.13

II Project Description/Attributes of Success

The Chapter 1 Structured Tutoring Program utilizes a highly structured, diagnostic, prescriptive program which has been designed for use either by paraprofessional adult tutors or supervised 4, 5, & 6 grade student tutors who, after parental permission, volunteer a daily segment of their free or study time to assist younger students. Tutoring has been found to benefit the student tutor as well as the student being tutored.

1. Project Goals & Objectives

a. The overall goal of this Chapter 1 project is to improve the reading and/or math skills of educationally deprived students, through the use of carefully sequenced instructional increments and positive reinforcement strategies that are designed to increase self-concept and improve the likelihood of success. Our Chapter 1 objective states:

> Educationally deprived students in grades 2-6 who have been tutored at least 2/3 of the prescribed time (October 15 - April 15) in Reading/Math by Student Tutors, Tutor Managers, or Adult Tutors will make a weighted mean NCE gain of 5 points on the Stanford Diagnostic Reading/Math Test.

Principals and teachers have identified reading and math along with improvement of individual self-image as the most important student goals for our program and our school district.

Each year, our Chapter 1 goals are communicated to parents, regular classroom teachers, school board members and other members of the community when we hold our Chapter 1 Open House Week. At that time all are invited to observe the program in progress and our goals and objectives are made known to all who attend. In addition to our Open House week, an open meeting is held annually to inform all interested parties about Chapter 1.

An update on Chapter 1 is also sent to all parents of Chapter 1 students in the form of a January Newsletter.

*b. The program is carefully structured, and a system has been built into it to ensure that positive reinforcement strategies are used and objectives are met. All skills are carefully sequenced and as each student masters a skill, a record is completed that shows the prescription date and the date of mastery. The learning progress of every child can easily be reviewed at a glance.

Positive reinforcement techniques are taught as part of the training. Rewards, stars, positive notes to parents & teachers, awards for achievement and good attitude are all provided and encouraged as a part of the program. Even the adults hired as Tutor Managers and Adult Tutors receive encouragement and awards for jobs well done.

2. Coordination with Regular School Program

Due to the nature of the Structured Tutoring Program, coordination with the regular classroom curriculum is assured. The program focuses on basic skills that must be mastered regardless of the basal series being used. In our district, we have a wide variety of reading and math texts and the Structured Tutoring Program works well with all of them, because it is designed to survey the basic reading and/or math skills of each student. Once the diagnosis is complete it focuses on the skills that are weak or lacking. These skills can be found in any basal. After mastery of a diagnosed skill the next sequential skill is prescribed. Appropriate practice exercises and systematic review are also built into the sequence. Once a student masters a concept, s/he is able to put it to use in the regular classroom immediately.

Chapter 1 tutors regularly keep teachers and parents informed when students master new objectives. Student tutors also write notes to teachers and parents when the tutee masters a new instructional objective. Teachers responding to teacher surveys report that they see immediate progress in the students they send to tutoring. Because of the highly structured sequential development of the basic skills, mastery learning is easily observable by the teacher.

3. Parent/Community Involvement

Parents and other community members are invited to be involved in the planning, implementation, evaluation and support of the Chapter 1 Project through our Chapter 1 District Advisory Council. An open meeting is held each year and parents and community members are invited to attend. At this meeting, the Chapter 1 programs are described and input is solicited from those attending. Subsequent meetings are held throughout the year to update the members.

A Chapter 1 Open House Week is also held in each Chapter 1 School. Parents, school board members, administrators, and other interested parties are invited to visit. This year's Open House was held the last week in November, 1985, and approximately 187 parents attended and completed a questionnaire reporting their impressions. They all responded positively and they felt the program was very beneficial for both student and student tutor. Typical comments are, "It's great! The younger children seem to enjoy the attention they receive from their tutor. This seems to add to the younger children's motivation to try their best. The tutors are gaining a sense of community spirit of pitching in and helping."

"We really like it. All 4 or our children have been involved one way or the other."

During Open House Week, one evening is chosen at each Chapter 1 elementary school for a special Parent Training Workshop. At this workshop, parents are provided with a Parent Training Manual, sample learning games, and sample materials for working with their children at home. Approximately 180 parents attended our Parent Training Workshop and 104 parents returned the Parent Training Evaluation form - 100% reported that the workshop was good to excellent. Typical comments follow:

"I think the program is excellent. I know that if the parents follow-up with the things in the manual that they will see improvement. I know that it (the manual) will help me, to help my child."

"I was very impressed with the way the Chapter 1 tutoring was presented and I think my child will greatly benefit from the program. I am glad I had the opportunity to see how it works."

4. Professional Development and Training

Due to the nature of the Structured Tutoring Program, thorough preservice and inservice training is essential to all new personnel. New personnel receive at least 3 days of perservice training. Diagnostic testing procedures and interpretation of the Harrison diagnostic tests must be mastered in order to prescribe appropriate learning objectives in the sequence. Specific record keeping procedures for each student and tutoring techniques are mastered before the new personnel ever enter the school. Dr. Grant Von Harrison[1] (1971) has developed self-training tapes & materials so self-instruction can be implemented for new staff.

The Tutoring Program Specialist provides all personnel, both new and returning, with a one day orientation and update workshop at the beginning of each school year. At this time, the staff is informed of any changes in program or Chapter 1 regulations. Time-lines are given to each person and the year's expectations, goals, & objectives are discussed.

Other staff development activities include an annual performance evaluation of each Tutor Manager and Adult Tutor, by the Tutorial Program Specialist. After this assessment, steps are taken to correct any areas of deficiency and a written report is provided for each principal.

At least one inservice workshop is scheduled during the year which relates to positive reinforcement techniques, learning games or self-concept as it effects school achievement. It is usually scheduled for late Winter or early Spring in order to bolster the morale of the tutors, and provide them with some exciting new ideas. All Chapter 1 personnel also attend the State Department sponsored Chapter 1 Conference.

5. Strong Leadership

The leadership of the Structured Tutoring Program begins in the central office. The Coordinator of Federal Programs, the Chapter 1 Program Facilitator, and the Tutorial Program Specialist all work together to keep principals and other administrators informed about Chapter 1. Principals & central staff administrators are invited to attend two informational meetings each year. At these meetings principals are able to discuss and solve problems relating to the operation of their Chapter 1 program. Regulations and Chapter 1 guidelines are also discussed to insure that principals have been informed concerning the operation of the tutoring program in their schools.

Principals and staff alike feel free to call the Chapter 1 central staff at any time as problems or concerns arise. Support from the community has been acquired through school board presentations, coverage by the media and parent training workshop (see item #3). Because of this varied support, strong leadership & support is evidenced from the School Board of Trustees right down to the parents whose students attend the Chapter 1 school.

[1]Grant Harrison, Structured Tutoring (Provo, Utah: Department of Instructional Research & Development, Division of Instructional Services, BYU Press, 1971)

*6. Appropriate Instructional Materials, Methods, and Approaches

The Structured Tutoring Program is a pull-out project that utilizes tutors (either older students who volunteer some of their study time or paid adults) who follow carefully structured materials. The program is designed for maximum efficiency in a minimum of time. Well-trained tutors spend an average of 20 minutes a day teaching & reinforcing basic skills.

*The project is unique in that it does not require certified personnel. The nature of the materials and training encourages use by paraprofessional adults and supervised student tutors. The Structured Tutoring Program is perhaps a major breakthrough in maximizing human resources. It utilizes carefully structured materials which allow the student to progress through a specified set of basic objectives (such as mastery of simple addition without regrouping or a specific set of sight words) in a systematic manner. Mastery of each prerequisite objective insures success at each progressive level. Each lesson contains teaching instructions, exercises to provide appropriate practice, and post-assessment in order to assure student mastery before continuation in the sequence. Children being tutored are able to see their own daily progress on an assignment sheet and a Contingency Record which is kept in the child's personal folder along with daily assignments. These records enable the student to see graphically where s/he is in the sequence and encourages individual goal setting. Records kept in the student's folder also serve to inform parents and classroom teachers of the child's progress.

*The program is based on time-tested and proven learning theory:

1. Basic skills and concepts are identified and listed sequentially to ensure that all pre-requisite skills are mastered before attempting more advanced objectives.
2. Terminal objectives are broken down into smaller prelimiary objectives to guarantee as many successful experiences as possible for each student.
3. Diagnostic-prescriptive techniques provide for appropriate placement of the students in the skills sequence, and more efficient learning because time is not wasted in teaching objectives that have already been mastered.
4. Appropriate practice is provided at each level to ensure retention.
5. Positive reinforcement techniques, combined with the immediate feedback provided by a one-to-one tutoring situation, enable the student to feel an immediate sense of accomplishment and success, perhaps for the first time.
6. Complete daily records enable the student to chart progress and set goals. Both processes are known to facilitate learning.
7. Complete pre-post data and daily records provide an accountable program which can be easily monitored to ensure quality control.

Although study skills are not directly identified in the sequence, individual student needs can be dealt with most efficiently because the one-to-one grouping makes it possible to adapt each lesson to the student's specific needs.

Activities need never become boring or frustrating for the student because when mastery occurs the student goes on to the next objective, and if a student needs to review a concept previously taught it can be done immediately.

Positive reinforcement is built in. Teaching instructions remind tutors to praise correct answers, stars and contingencies are awarded for each mastered objective, and certificates and awards are used to give additional reinforcements for tutors and students alike.

The progress records serve a dual role. They provide the students with a record of their achievement; but they also provide the Tutor Manager with an instant reproduction of the student's progress. One can easily tell at a glance if the student is making consistant progress. If a problem seems evident, further investigation into the tutor log will give a more detailed account of why the student had difficulty at any one time.

The careful design of the materials, the thorough training of personnel, and the continued emphasis on quality control combine to make a truly effective program.

7. High Expectations for Student Learning and Behavior

As students develop self-confidence in the tutoring program, they begin to feel more confident in the regular classroom. Success breeds success. Tutors send positive notes to classroom teachers and parents. Students set goals and are able to meet them. Teachers see the students in the program achieveing and expect improvement from all tutored students.

*8. Positive School/Classroom Climate

Positive school/classroom climate is fostered daily by the positive nature of the program. Although student tutors are not directly targeted in our program objectives, they continually demonstrate its positive effects. Student tutors take responsibility for the welfare of younger students. They sign a contract agreeing to be responsible for maintaining their own grades and completing all of their own daily assignments. In order to live up to their contractual agreement, they must use their self-discipline daily as they report to tutoring on time, encourage and patiently teach their student and return to their class on time. They must also complete all of their assignments even though they have missed 20 minutes of study or class time.

Parents and teachers alike report that student tutors exhibit more self-confidence, show more respect for others, and are better able to organize and budget their time after they have served as student tutors (see evaluation section).

Students are encouraged to continue the special effort necessary to be a student tutor by special activities and practices in each school, that are designed to improve the student tutor's self-image. When student tutors complete their training, they receive a special certificate that states they have completed training as a student tutor and are now qualified to tutor in the Structured Tutoring Program. This award is often given in an assembly. Tutor of the Week awards are given and bulletin boards display the honored tutor's picture. A special certificate accompanies this honor along with a variety of other benefits.

At the end of each school year, student tutors are again recognized in the school assembly and given awards for dedicated service. In most schools, tutors are also allowed to attend a special tutor appreciation party.

When the student tutors' morale is maintained, they are better able to provide the consistent positive reinforcement necessary to ensure the development of self-confidence and self-esteem in their younger tutee.

"Never say no", is a phrase heard often when tutors are being trained. This phrase refers to the positive learning experience that the Structured Tutoring Program strives to accomplish. Tutors are trained to never respond negatively when a student makes a mistake. "Never say no, that's wrong. Say the correct response, have the student repeat it correctly, and then praise the student for saying it correctly." Tutors are taught to encourage their students every step of the way.

Learning increments, or steps, are small enough that students have to succeed. These small steps insure that students see their own progress daily. As each step is completed, students place stars and stickers on their own progress record. Students are proud of these records and often when the student leaves the program, s/he will take his/her progress record home and frame it or place it in a place of honor. Students know they are going to succeed in tutoring so they have a positive attitude toward being tutored.

9. Maximum Use of Academic Learning Time

Twenty minutes a day is not very long, therefore, it is imperative that the tutors and the materials they use be organized. The program is designed so that no time is wasted teaching skills that are already mastered. The diagnostic test identifies the skills to be taught. The materials are organized for quick & easy access and the tutors are trained to get the materials quickly and begin tutoring.

In a typical twenty-minute session, only about 3 minutes are used to get materials and return them. The rest of the time is spent with the tutor providing the stimulus and the student responding. The one-to-one approach provides maximum engaged time because the tutor need not divide his/her attention among any other students.

When the tutoring session is over. students are given their worksheets and reading assignments to take home. Parents are then encouraged to have the child demonstrate what they learned. Students are never asked to do homework or practice a skill at home that they have not already mastered. This ensures that the student will have a positive experience with homework and will not complete an assignment incorrectly making it necessary to reteach a concept. The parent training workshop (see item #3) also helps parents to reinforce the instruction provided in the Chapter 1 class.

10. Closely Monitored Student Progress

Student progress is monitored daily. The student progress records and tutor logs enable any observer to see at a glance what progress has been made. When a student begins a new objective, the prescription date is recorded on the student's progress sheet, after the child masters the objective the mastery date is recorded and the student places a star or sticker on the space allowed for that objective. All of the objectives are shown on the progress record, so an observer can easily see what has been mastered and what remains to be prescribed. An observer can also see exactly how long it has taken to complete each objective. For a more detailed daily record, the tutor log can be consulted. This log is completed each day by the tutor, and documents areas where review may be needed in the future, along with other important notations regarding the student's progress.

Students who are tutored by older student tutors, have a double review. Besides their student tutor's monitoring, the Tutor Manager has the final say on all new assignments and mastered objectives. The Tutor Manager checks informally on all student tutors and their students, but when a new objective is to be assigned only the Tutor Manager can make the assignment. After the Tutor Manager mastery checks the objective, s/he records the date of mastery and assigns the next step. Precise daily monitoring is built in at every step.

11. Regular Feedback and Reinforcement

The monitoring records (see item #10) provide the student with continuous feedback and reinforcement. However, the tutors are trained to give immediate feedback for every response solicited from the student. Positive reinforcement is built into the program (see item #8). Students always know what they have accomplished and their future goals in the program. Parents and teachers receive periodic progress reports stressing the positive gains the students are making. Special notes are written to parents and teachers to further encourage achievement.

12. Excellence Recognized and Rewarded

Tutor Managers and Adult Tutors have access to bulletin boards and other resources for recognizing student progress and achievement. Some of the ways this excellence is recognized are through "Student of the Week" awards. Special bulletin board presentations, certificates of achievement and the use of special learning games when goals are met. Student Tutors are also recognized for their faithful and conscientious service through Tutor of the Week Awards, special certificates and even Student Tutor celebrations and recognition at student body assemblies. The paid tutorial personnel are recognized for excellence through special awards given by the Tutorial Program Specialist.

13. Evaluation Results Used for Project Improvement

The Structured Tutoring Program uses its evaluation results in two ways: 1) as an indicator for project improvement; and 2) as a measure of program effectiveness.

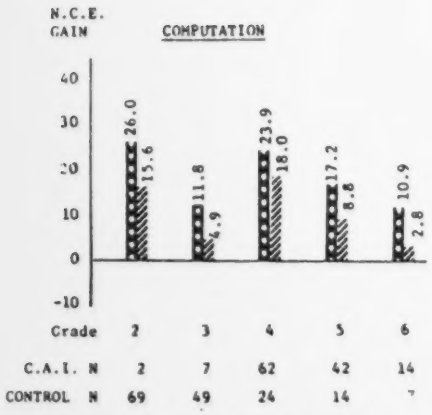
In the past, we examined reading results and found that we were making excellent gains in phonetic analysis, just as we expected, because our program focuses on word attack skills. However, when we looked at Comprehension gains, although they were positive, they were not as great as we desired. We immediately began a search for comprehension materials that could be added to the sequence of our original reading program. The following year these materials were implemented and our Comprehension gains soared. Our Phonetic Analysis gains remained high and our Comprehension gains increased to the extent that they now equal or exceed the Phonetic gains.

During the 1982-83 school year, it was found that the numbers of our upper grade students, grades 4, 5, & 6, were exceeding the capacity of our paraprofessional Adult Tutors. In an attempt to serve more students in these upper grades, we piloted a Computer Assisted Instruction component that enabled an Adult Tutor to work with two students at a time in Math. While one student did drill and practice math activities on the computer, the Adult Tutor was able to introduce new concepts to another student.

In order to evaluate the effectiveness of this program, two groups of students were evaluated. Group 1 (control) were students tutored in the traditional program without the use of micro-computers for drill and practice. Group 2 (experimental group) were students tutored using the same program with the addition of C.A.I. for drill and practice.

C.A.I. SPECIAL STUDY

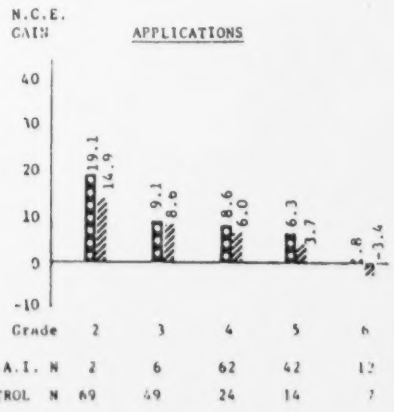
EXPERIMENTAL GROUP VS. CONTROL GROUP GAINS



C.A.I. Weighted Mean NCE Gain 19.6

CONTROL Weighted Mean NCE Gain 11.6

Significant to .0246



C.A.I. Weighted Mean NCE Gain 7.2

CONTROL Weighted Mean NCE Gain 9.9

No Significant Difference .0880

An analysis of co-variance insured that differences in pretest scores or length of tutoring sessions had no effect on study results. A test of significance on gains however indicate that the C.A.I. group made significantly greater gains in Computation, but no significant difference was evidenced in the area of Applications. This could be explained by the nature of software programs used. All programs were focused on drill and practice of math computational skills.

Because this study validated the effectiveness of the use of computers for drill and practice, C.A.I. was continued and expanded.

The Structured Tutoring Program evaluates its effectiveness by using a norm referenced model. The norm-referenced model requires that a normed test be given as a pre-post evaluative instrument. This test is not to be used as a screening devise, and it must have empirical norm dates that coincide with the desired testing dates of the program. The content of the test must also reflect the type of instruction being given in the program in order to appraise the program accurately. All gains are reported in Normal Curve Equivalency (N.C.E.) scores. An N.C.E. is based on an equal interval scale, derived from percentile rank, which can be averaged with statistical precision.

The norm-referenced model is based on the performance of students compared to the performance of the norm group. The Stanford Diagnostic Test standardized sample was chosen to be representative of the national school population. Such variables as family income, median years of schooling of adults in the community, socioeconomic status and district enrollment were taken into account, to generate a sample that truly reflects a national school population.

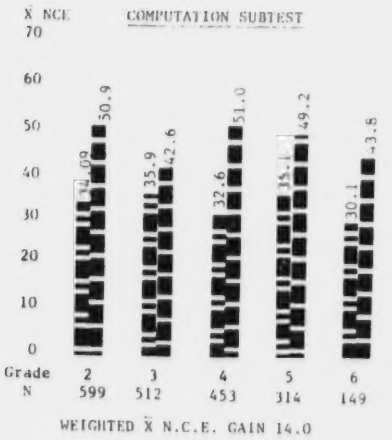
Students in the experimental group are compared to the norm group in the Fall (pretest) & again in the Spring (posttest). It is expected that a child who scored a 35 on the pretest would also score a 35 on the posttest if s/he improves at the same rate as the norm group. Therefore, a student who has increased his/her score has in fact grown more in achievement than the standardized sample.

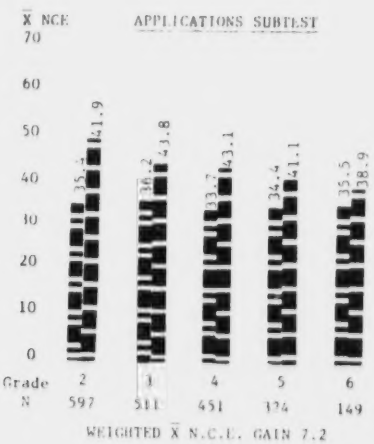
The same evaluation model has been used for six consecutive years. The mid-point date for pretesting has been October 7; and April 20 for posttesting. All testing occurred within the prescribed norming periods. The posttest was given to all pretested students who were still available for testing and who had participated in the program at least 2/3 of the prescribed time. For various reasons, such as late referral or family mobility, approximately 75% of the students served received both a pretest and posttest.

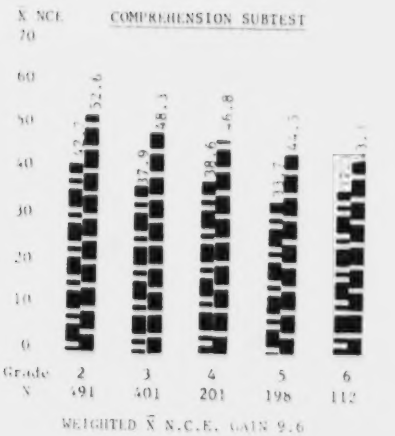
Each year raw scores were used to assign each student a percentile rank from the appropriate table. This percentile rank was then converted to a N.C.E. score. N.C.E. scores were then analysis by grade level to determine mean gain. Finally a weighted N.C.E. gain was derived using total numbers of students and total N.C.E. scores.

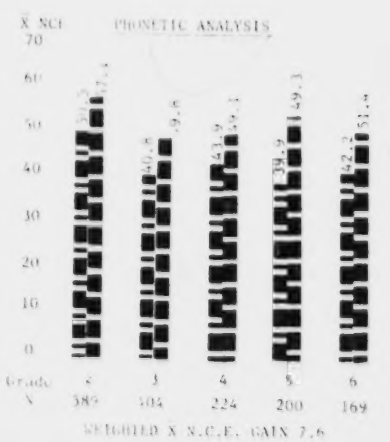
Specific Norm Referenced Data:

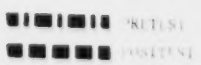
The tables below reflect the results of the 80-81, 81-82, 82-83, 83-84, and 84-85 school years. Gains are evidenced at all grade levels on the Applications and Computations subtests for Math; and Comprehension and Phonetic Analysis subtests for Reading. The weighted mean gain for all subtests demonstrates a highly effective program.











MATH

Statewide data shows a total of 4,118 of 5,915 (or 70%) Chapter 1 Math students receive more than 2 hours of instruction per week (354 received more than 5 hrs. per week). The Structured Tutoring Program provides approximately 1.5 hrs. per week instruction.

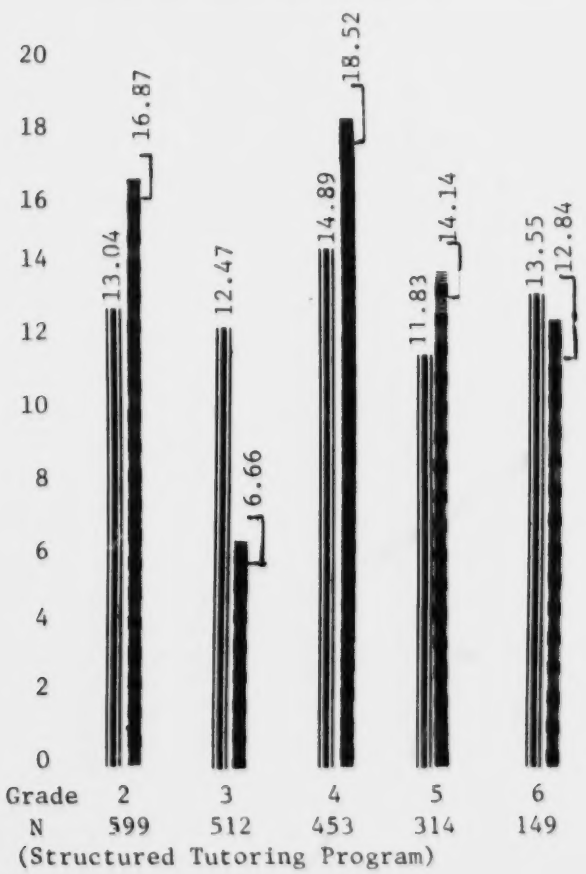
Over the past 5 years, the mean gain realized from the Structured Tutoring Program in Math, with its relatively short instructional time per week, has surpassed Statewide gains at all grade levels except for grades 3 & 6 (see chart below for comparison).

FALL TO SPRING TESTING

State N.C.E. Gains - 70% of students receive more than 2 hrs. instruction per week

Structured Tutoring Gains - 100% of students receive $\bar{X}$ of 1.5 hrs. instruction per week

COMPUTATION SUBTEST OF S.D.M.T.



Note: A confidence band reflects the possible NCE error in estimating achievement gains for Chapter 1 students. The more students in the group the more confident we can be in the accuracy of the gain. The brackets on the graph indicate the confidence band for the Structured Tutoring Groups based on the size of N. The top and bottom of the bracket indicates the highest and lowest possible score, taking into account standard error, for a sample group of that size.

READING

Statewide data shows a total of 9,568 of 11,546 (or 83%) of the Chapter 1 Reading students receive more than 2 hours and some (995) receiving more than 5 hours of instruction per week. The Structured Tutoring Program provides approximately 1.5 hours of instruction per week.

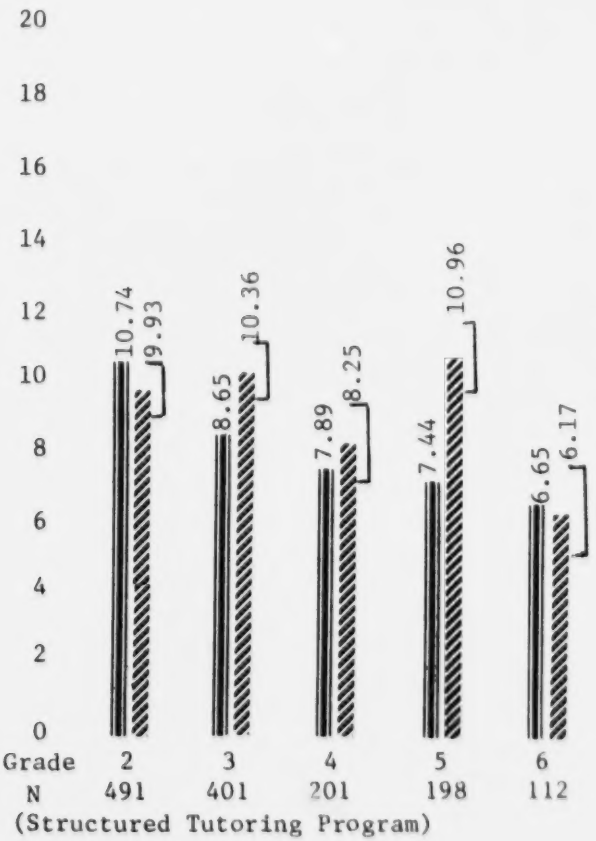
Over the past 5 years, the mean gain realized from the Structured Tutoring Program in Reading, with its relatively short instructional time per week has surpassed Statewide gains at all grade levels except grades 2 & 6 (see chart below for comparison).

FALL TO SPRING TESTING

Statewide N.C.E. Gains - 83% of students receive more than 2 hours of instruction per week

Structured Tutoring Gains - 100% of students receive $\bar{X}$ of 1.5 hrs. instruction per week

COMPREHENSION SUBTEST OF S.D.R.T.



(Structured Tutoring Program)

Note: A confidence band reflects the possible NCE error in estimating achievement gains for Chapter 1 students. The more students in the group the more confident we can be in the accuracy of the gain. The brackets on the graph indicate the confidence band for the Structured Tutoring Groups based on the size of N. The top and bottom of the bracket indicates the highest and lowest possible score, taking into account standard error, for a sample group of that size.

Other Aspects of the Program:

In an effort to further evaluate the effects of the Structured Tutoring Program, questionnaires were sent to parents, teachers, and principals. Educators and parents indicated that they were definitely in favor of continuing the program.

In all cases, responses were highly favorable. Educators and parents alike commented on the value of the tutoring program as evidenced below - 100% of the principals surveyed felt that the structured tutoring approach was a valuable educational service, and saw positive changes in the children being tutored.

What parents had to say:

"To me, this is one of the best programs the school system has."

"It has given my child a self-confidence she may not have had otherwise."

"This program has spurred my son's interest in math unbelievably. His confidence has been terricially boosted. Thanks to all involved in this exceptional program."

Of the 547 parents responding to the 1984-85 survey, 96% said they could see an improvement in their child's attitude since tutoring began.

What teachers had to say:

"I have noticed a tremendous change in the students being tutored. They have much more self-confidence."

"The tutoring allowed my children to get the extra help they needed without my having to take time away from the rest of my class to help the special ones. I have also noticed a marked improvement in all of my tutee's math skills. They really enjoy tutoring."

"Math tutoring has been very successful with my students. It gives them the necessary confidence attained from one-to-one situations."

One-hundred percent of the teachers of Student Tutors reported that students exhibit more self-confidence after becoming tutors.

Since Student Tutors are essential to the Tutor Manager Program, and at times teachers are reluctant to release students to serve as tutors, a study was undertaken to measure the cognitive effect, if any, on the Student Tutor.

A search of the Boise School District's computer print-out information was conducted to find the 1977, 1978, & 1979 spring Stanford Achievement Test scores on the Concepts Subtest, Computation Subtest, and Total Math Scores for students who had tutored at least 2/3 of the prescribed time (60 sessions) in the 1978-79 school year, but who had never previously served or been trained as Student Tutors.

Scores from 1977-78 were used to establish the control scores for the study. The population is the same - the control is how they performed before treatment. The change made between spring 1977 (pretest) and spring 1978 (posttest) when students were not serving as tutors, was compared with the change between the spring 1978 (pretest) and spring 1979 (posttest) during which time the students served as tutors and, in effect, became the experimental group with the act of tutoring serving as the treatment. The administration of the 1978 S.A.T. scores for purposes of this study served a dual purpose: they served as pretest scores for the experimental group and as posstest scores for the control.

The table below reflects the average score of students on the Stanford Achievement Test, for the year when they were not serving as tutors (1977-78) compared to their average scores when they did serve as tutors (1978-79).

1978-79 MATH STUDENT TUTOR STUDY N.C.E. ANALYSIS OF S.A.T. RESULTS

		GRADES		
		4th (N=17)	5th (N=78)	6th (N=39)
CONCEPTS	Mean NCE Scores, Spring 1977	72.9	61.3	55.1
	Mean NCE Scores, Spring 1978	63.9	56.7	52.9
	Mean NCE Scores, Spring 1979	63.9	60.5	57.6
	COMPARISON - TREATMENT VS. CONTROL GROUPS			
	Control - NCE Change, 1977 to 1978	-9.0	-4.6	-2.2
	Treatment - NCE Change 1978 to 1979	0.0	3.8	4.7
COMPUTATION	Mean NCE Scores, Spring 1977	63.4	54.7	50.3
	Mean NCE Scores, Spring 1978	57.5	56.3	51.8
	Mean NCE Scores, Spring 1979	62.1	58.9	59.0
	COMPARISON - TREATMENT VS. CONTROL GROUPS			
	Control - NCE Change, 1977 to 1978	-5.9	1.6	1.5
	Treatment - NCE Change, 1978 to 1979	4.6	2.6	7.2
TOTAL MATH	Mean NCE Scores, Spring 1977	69.7	59.5	52.8
	Mean NCE Scores, Spring 1978	63.0	58.7	53.5
	Mean NCE Scores, Spring 1979	64.6	60.9	57.2
	COMPARISON - TREATMENT VS. CONTROL GROUPS			
	Control - NCE Change, 1977 to 1978	-6.7	-0.8	0.7
	Treatment - NCE Change, 1978 to 1979	1.6	2.2	3.7

The results show mean N.C.E. scores on two subtests of the S.A.T. plus the Total Math scores of student tutors who met 3 criteria: 1) spring math scores available for 1977-78-79; 2) students tutors at least 60 times during the 1978-79 school year; 3) students who had not tutored at all during the 1977-78 school year.

On all three measures, and at all grade levels, the change occurring during the 1977-78 school year when the students were not serving as tutors was a negative change or a less positive change than results shown for the 1978-79 school year when the students did serve as tutors.

Results of this study upheld our precept that serving as a student tutor does not hamper cognitive growth and, in fact, indicates a positive effect for the student tutor. This information supports our belief that the Structured Tutoring Program benefits not only the child being tutored, but also the student serving as a tutor.

Due to the results of this study, more student tutors were used and teachers were more willing to provide students as tutors.

When teachers were surveyed, 97% of the 33 responding reported that student tutors seem better able to organize and budget their time. They also reported that students showed a sense of responsibility for the students they tutored.

Conclusion

Each year a complete and comprehensive evaluation is completed. Controls and pilot studies evaluate any new additions or changes in the program. Year after year, results prove the effectiveness of the program.